In Mammalia a thick and highly transparent membrane,—the true chorion,—is formed external to the proper membrane of the yelk, while the latter is in the ovary. The inner part of the substance of the chorion in its early stages is in a fluid state, so that the yelk-ball moves freely in it; but it subsequently acquires more consistence. There is not any structure corresponding to the chorion in the *ovary* of other vertebrated animals.

The following appears to be the order of formation, as to time, of the more permanent parts of the ovum and the Graafian vesicle in Mammalia, viz.:

1. The germinal vesicle, with its contents, and its envelope of peculiar granules.
2. The proper membrane of the ovisac, which forms around this envelope of granules.
3. The yolk, which forms around the germinal vesicle.
4. The proper membrane of the yolk, which makes its appearance while the yolk is still in an incipient state.
5. The chorion.
6. The covering or tunic of the ovisac; and about the same time, the peculiar granules of the ovisac arrange themselves to form,
   - The tunica granulosa,
   - The retinacula, and
   - The membrana granulosa.

Such of these structures as are present in the ovary of other Vertebrata, appear to originate in the same order as to time.

"Contributions to the Physiology of Vision." By Charles Wheatstone, Esq., F.R.S., Professor of Experimental Philosophy in King's College, London. *Part the First.* "On some remarkable and hitherto unobserved Phenomena of Binocular Vision."

The author first shows that the perspective projections of an object upon the two retinæ differ according to the distance at which the object is placed before the eyes; if it be placed so distant that to view it the optic axes must be parallel, the two projections are precisely similar; but if it be placed so near that to regard it the optic axes must converge, a different perspective projection is presented to each eye; and these perspectives become more dissimilar as the convergence of the optic axes becomes greater. Notwithstanding this dissimilarity between the two pictures, which is in some cases very great, the object is still seen single; contrary to the very prevalent metaphysical opinion, that the single appearance of objects seen by both eyes is owing to their pictures falling on corresponding points of the two retinæ. After establishing these principles, the author proceeds to ascertain what would result from presenting the two monocular perspectives, drawn on plane surfaces, to the two eyes, so that they shall fall on the same parts of the two retinæ as the projections from the object itself would have fallen. Several means are described by which this may be accomplished; but the author especially recommends for this purpose an apparatus called by

him a *stereoscope*, which enables the observer to view the resulting appearances without altering the ordinary adaptation of the eyes, and therefore without subjecting these organs to any strain or fatigue. It consists of two plane mirrors with their backs inclined to each other at an angle of 90°, near the faces of which the two monocular pictures are so placed that their reflected images are seen by the two eyes, one placed before each mirror, in the same place; the apparatus has various adjustments by means of which the magnitude of the images on the retinæ may be varied, and the optic axes differently converged. If the two monocular pictures be thus presented one to each eye, the mind will perceive, from their combined effect, a figure of three dimensions, the exact counterpart of the object from which the pictures were drawn; to show that this curious illusion does not in the least depend on shading or colouring, the illustrations principally employed are simple outline figures, which give for their perceived resultants skeleton forms of three dimensions. Each monocular outline figure is the representation of two dissimilar skeleton forms, one being the form which it is intended to represent, and another, which Prof. Wheatstone calls its converse figure Viewed by one eye alone the outline may with equal ease be imagined to be either; but when the two monocular pictures are viewed one by each eye, the proper or the complemental form may be fixed in the mind; the former, if the right and left pictures be presented respectively to the right and left eyes; and the latter, if the right picture be presented to the left eye, and the left picture to the right eye. Many new experiments are then detailed, and a variety of instances of false perception of visual objects, some new, others formerly observed, are traced to these principles; among others, the well-known apparent conversion of cameos into intaglios. The author next proceeds to show that pictures similar in form but differing in magnitude within certain limits, when presented one to each eye, are perceived by the mind to be single and of intermediate size; and also that when totally dissimilar pictures, which cannot be combined by the mind into the resemblance of any accustomed objects, are presented one to each eye, they are in general not seen together, but alternately. The memoir concludes with a review of the various hypotheses which have been advanced to account for our seeing objects single with two eyes; and the author states his views respecting the influence which these newly developed facts are calculated to have on the decision of this much debated question.

"Experimental Researches in Electricity," *Fourteenth Series*.

On the general nature and relation of the Electric and Magnetic Forces. By Michael Faraday, Esq., D.C.L., F.R.S., &c. &c.

The author commences by observing that the theory of electrical induction, which he had set forth in the 11th, 12th, and 13th series of researches, does not assume or decide anything as to the real nature of the electric forces, but only as to their distribution; the great question respecting the existence of any electric fluid, or of one, or of two fluids remaining untouched. He then states what